

SOME THOUGHTS ON FINANCIAL INNOVATION AND FINANCIAL CRISES

Giovanni Palmerio

Department of Economics – LUMSA University, Rome

E-mail: palmerio@lumsa.it

Abstract

Financial innovation, which was originally introduced for a positive aim, over time has actually had relevant negative effects on the economy. This occurred because it encouraged intermediaries to change their way of operating, allowing them to modify their solvency without changing radically their external shape. Financial innovation, which developed on account of both the need to finance the growing USA external debt and the tendency of American families to incur into excessive debts, is certainly the main cause lying behind the recent financial crises. In the future, these can be avoided only by means of a strict regulation of financial markets.

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Introduction

Traditional economics textbooks describe banks as institutions performing almost uniquely traditional financial intermediation, i.e. receiving deposits and issuing loans. This type of bank is rapidly disappearing. It is being substituted by a new type of bank that offers clients an increasingly diversified range of services. An effect of this change is that the revenues accruing from interests are becoming less and less important in banks' balance sheets while those tied to commissions, or to the purchase (or sale) of securities on financial markets, are growing. This phenomenon occurred both in the United States and in Europe especially during the 'Nineties. In the US the share of revenues not originating from interests passed from some 20% in the 'Eighties in last century to 43% in 2001 (Stiroh, 2004). In Europe it went from 26% in 1989 to 41% in 1998 (European Central Bank, 2000).

This dramatic change was certainly fostered by new technologies, and especially by the spreading of new channels for electronic data transmission. However the factor that is almost unanimously acknowledged as being the main element to speed up the transformation of the banking system is the liberalization of financial markets (Ciarrapico and Cosci, 2008). In the course of the last twenty years regulations changed both in the US and in Europe, allowing new subjects, other than banks, to operate on markets where previously only banks operated and also allowing banks to extend their activities to other markets, besides the usual supply of loans to enterprises. As the offer of activities on behalf

of banks became more diversified, interest margins became thinner, both in the United States and in Europe. Some scholars interpreted this fact as a natural reaction of banks to growing competition on the credit market.

If on the one hand it is no more possible to teach that banks' main activity – possibly the only one – is that of receiving deposits and issuing loans, on the other hand also traditional analyses of the money market are becoming meaningless. Money markets are no longer represented by essentially two types of securities, (fixed income) bonds and (variable income) shares. Financial innovation has created, and continues to create, a growing number of different securities, the so-called *derivatives*, and now a great number of them exist.

1. The United States' foreign deficit and its effects

The causes of the huge, abnormal, development of financial innovation are essentially two.

The first one is represented by the enormous growth in international liquidity. The latter, in turn, stems mainly from the current account deficit of the United States' balance of payments. This country started recording a deficit in 1972 and never ceased doing so since then; now the deficit is more than 6% of the country's GDP. Moreover, the United States' deficits are growing, notwithstanding the strong devaluation of the dollar. Since the early 'Seventies the situation of the US economy has changed completely with respect to that of the 'Sixties or even earlier, when the American trade balance had a surplus and the outflows of capital balanced the balance of payments or else made it negative.

The financial crisis that exploded in 2008 eventually lead commentators throughout the world to investigate a number of features of the American economy that should have been questioned long since both by economists and politicians. This refers to the need to analyse the structural causes of the low competitiveness of the American economy as a whole together with the prospective effects of the growth of the American foreign debt.

Until the early 'Sixties in the last century foreign trade was scarcely important for the American economy. In 1960 the US exports of goods and services represented less than 5% of GDP. Imports were still lower, given that the American trade balance was at the moment positive. Nowadays exports represent some 10% of GDP while imports are over 15% (the trade deficit is around 6% of GDP). However, the most important aspect is that American goods currently face international competition, which did not occur until the 'Sixties in the last century.

The American trade deficit is financed by the inflow of capitals from abroad. The liberalization of capital flows that occurred in the last twenty years is at the root of this. Capitals flow into the United States under the form of both purchases of Treasury Bonds and Bills and of shares of American corporations on behalf of foreigners. Naturally, to encourage the latter to purchase US securities, Treasury Bonds must offer a relatively high interest rate, and also the dividend paid by American corporations must be high.

Actually, for years American financial markets ensured the distribution of high dividends. Together with the growth of the new economy, throughout the 'Nineties this determined a massive inflow of capital. However the phenomenon slowed down in the early 2000 when the foreign deficit of the US started to be financed mainly through the net purchase of bonds on behalf of foreigners. More in detail, the purchase of US Treasury Bonds has

grown strongly in the last years, essentially due to intervention of the monetary authorities of other countries. It is worth noting that since the end of 2001 until to-day the purchase of Treasury Bonds by American residents is virtually nil. Over the years, the US has reached a foreign debt equal to some 27% of gross domestic product.

These facts should have made us consider the possibility that, notwithstanding the size and the growth potential of the American economy and notwithstanding the country's political and military role, its growing foreign debt would sooner or later determine a confidence crisis with strong negative effects on the world economy and on international economic and monetary relations. Actually, the American growth rates from the 'Nineties on were based on extremely peculiar features, such as the strong expansion of consumption and investment and the growth of the trade deficit.

The growth in expenditure for consumption was only in part linked to a growth in families' incomes, while it was largely financed by debt. The use of credit cards, of instalment credit, of real estate mortgages together with other instruments allowed the huge growth in the indebtedness of American families, while the propensity to save fell progressively, approaching zero.

Investments, especially in the new economy, were financed by foreign savings, i.e. by the huge inflow of capital from abroad. Flows took the form of the direct purchase of American enterprises, besides, as seen, purchases of shares and bonds. The value of American assets owned by foreigners now reaches some two thirds of the United States' GDP.

However, to better understand the mechanisms underlying growth in the presence of strongly expanding consumption financed by an abnormal rise in families' debt, investment financed by high inflows of capital from abroad and a huge trade deficit, one should analyse the role and the transformation of financial markets in some depth. Starting from the 'Seventies and especially during the 'Eighties and 'Nineties in the last century the functioning of American enterprises and financial markets underwent structural changes. The goal of the firm's growth based on self-financing and investment in research, that was central in managers' strategies, gradually started losing importance in American culture. On the other hand the revenue accruing from shares became firms' main target – eventually the only one. The firms' goal has increasingly become that of maximising shareholders' revenue in the short run. Dividends and the market value of shares therefore became managers' only concern. Their own wages were often linked to the value of shares through various mechanisms, like that of stock options.

The causes of this phenomenon that is now producing its destructive effects through an international financial crisis are debatable. One element is linked to the fall in profits and growth due to the oil crisis in the 'Seventies. Lower profits could have made shareholders claim higher dividends and in general a bigger consideration of their specific interest rather than of those of the firm *in se*.

Another element is the return of the typically American idea that property rights rank first. This entails restoring shareholders' legitimate rights, which had been somewhat by-passed since a class of professional managers had *de facto* undertaken the management of firms, creating the well-known separation between property and control. Actually during the 'Eighties in the last century a number of associations and movements defending shareholders' rights was created.

However, the main cause behind the spreading of the idea that firms' most important objective – if not the only one – should be shares' returns rather than the firm's growth lies in the change in firm ownership. The process started in the 'Seventies and speeded up during the 'Eighties. Towards the end of the nineteenth and in the early twentieth century shares passed from a small number of the firms' founder families to a great number of shareholders. The fragmentation of ownership led to the growing power of managers. However, around the early 'Seventies share ownership started to be again concentrated, this time in big financial institutions, like investment and pension funds. More in detail, albeit being always divided among a huge number of savers, financial wealth was now managed by institutional investors which, being relatively few, could convey their orders and conditions to managers. Institutional investors encouraged managers – and still do – to privilege only the market value and the returns of shares irrespective of other goals.

The effects of this transformation became evident during the 'Nineties, when the booming new economy directed huge capital flows towards the shares of firms operating in this sector, making their market value rise enormously. Together, also directors' salaries rose enormously in most of the largest American corporations (largely through stock options), while investment in research and development fell. During the 'Sixties in the last century 44% of profits, net of taxes, was paid as dividends while during the 'Nineties 85% of profits was distributed. Institutional investors change their portfolio continuously, much more frequently than before, in order to grant their clients higher returns, even repurchasing their own shares to keep the price high (Hutton, 2002).

The evolution of the American economy over the last twenty years calls for some thoughts. Firms' management aimed at maximising the market value of shares together with their short run returns entails cutting costs, i.e. not only reducing investments in the long run, especially those pertaining to research and to improving human capital, but also curtailing employment and wages. The degree of inequality in income distribution rose significantly over the last twenty years, while the benefits of the welfare state – especially for unemployment benefits – fell.

The excessive expansion of the financial sector in the economy made the majority groups and the managers of large companies concentrate more and more on financial speculation, and always less on the production of goods.

Since the 'Eighties takeovers have intensified, often in the form of financial groups buying on the Stock Exchange many shares – often the majority – of firms operating in any sector. This leads to the formation of concentrated conglomerates.

Generally speaking, mergers may improve efficiency by means of higher concentration, with the entailed advantages of more integration and coordination among firms. However this occurs only whenever a group buys a firm to keep it indefinitely, or for a long period. If instead a group buys a firm with the intention of re-selling it shortly after, it performs a purely speculative action. It will never attempt to integrate or to coordinate the firm's activity because, quite the opposite, this would reduce saleability, inasmuch as it would limit the firm's independence.

If mergers have a purely speculative intent, i.e. their main aim is that of raising a firm's worth on the Stock Exchange in order to sell it soon after, it is quite unlikely they will make overall efficiency improve.

Actually, the so-called “market of control” that developed rapidly in the United States from the ‘Eighties on was based almost entirely on short-run speculative operations.

Therefore the abnormal development of financial innovation may be initially explained by the peculiar evolution of the American economy, by the need to finance the current account deficit of its balance of payments and by the ensuing spreading of a “speculative” attitude, both among firms and, to a lesser extent, among families.

2. Financial innovation and risk management

The second cause lying behind the spreading of increasingly complex financial instruments is the attempt to finance extremely risky activities by spreading the risk on other subjects, eventually dividing it among a very big number of units by means of derivatives. The value of these securities is linked to the return of other financial instruments or indexes. They were initially created to cover and to hold market risks in check but in practice most financial intermediaries used them to speculate on the volatility of rates or of other reference parameters. In particular this was the case for second generation, so-called “synthetic” derivatives. These operations by-passed the principle according to which intermediaries should direct savings towards the most profitable investment projects. In a framework *à la* Schumpeter this principle assigns the bank a central role in economic development.

The size of the market for derivatives has grown incredibly over a few years. It was estimated to equal 600 billion dollars in 1999 and to have reached 17 trillion dollars only seven years later, in 2006 (Ashcraft and Santos, 2007). Most scholars believe that globalization is the main cause of the development of this market because it exposes firms, investors and governments to new risks, both exchange rate risks and political ones. Moreover, agents issuing derivatives were compelled to face the peculiarities of potential clients belonging to diverse populations. The uncertainties of the global financial market lead to the creation of securities apt to manage and to “exploit” the new risks (Smith, Smithson e Wilford, 1990).

In economic literature authors agree that innovation may have both a positive and a negative impact on society, but not all agree on its net effect. Not all of them claim that financial innovation is a “positive-sum game”¹.

For some scholars financial innovation is actually the engine that allows the financial system to achieve its ultimate goal, helping the real economy operate (Merton, 1995). From the point of view of economic theory, it is possible to claim that, given incomplete markets, financial innovation is an instrument that gives operators a wider range to choose from, which raises social welfare *à la* Pareto. However, other models show that the introduction of a new financial asset may also reduce social welfare².

Innovation allows a financial intermediary to differentiate its supply with respect to competitors. This raises its ability in satisfying clients’ needs. In principle, innovation represents the invention of more effective financial solutions to satisfy clients’ new needs. It thus contributes to making financial markets more efficient. At the same time, however, the innovation created by an intermediary may have a negative impact on social welfare.

¹ See the survey by Tufano (2003).

² See for instance R. Elul (1995).

This occurs whenever it raises information asymmetries to the damage of potential buyers and to the advantage of the creators of the innovation. Innovation makes a potential buyer undertake a costly effort to gain knowledge. This may be ineffective inasmuch as the buyer may not always achieve the necessary ability to analyse, evaluate, select and choose in order to undertake an informed purchase. Often the issuing agent himself acts as an advisor. This leads to an inevitable conflict of interest that makes “unaware purchases” on behalf of the least informed agent all the more likely. With time innovation has led to increasingly complex products which in turn make it more and more difficult for agents to evaluate correctly, especially in terms of risks. This makes mistakes all the more likely, which in turn lead to social costs.

Empirical analyses³ prove that innovation goes hand-in-hand with a strong fall in the interest rates on mortgages. Other studies show the positive effects of financial innovation: for instance the prices of the Single name credit default swaps (CDS) can convey important information, inasmuch as they anticipate rating’s changes (Hull, Predescu and White, 2004, and Houweling and Vorst, 2005). In theory, this could lower banks’ costs in selecting and monitoring enterprises issuing market traded CDS. Enterprises, in turn, could draw benefit by selling their bonds more easily. Therefore, thanks to these derivatives, they could even gain easier access to credit. CDSs are an extremely liquid contract. They are considered as a very simple way to exchange risk alternatively to bonds.

Other economists instead are sceptical on the net positive effect of financial innovation on the economy. More in detail, many underline the costs it entails in terms of tax evasion or postponement, of the ensuing fall in fiscal revenue, in efficiency, equity and therefore in welfare.

Moreover, it should be kept in mind that whenever banks take on uncovered risks, this damages society. How much this damage is relevant has become evident in the last years as sophisticated securities developed thanks to financial promoters with loose ethical principles and, among the other things, thanks also to the diffusion of a speculative mentality among families. Therefore it has been relatively easy to find a growing number of clients claiming returns above market ones and often scarcely aware of the risks entailed.

While to-day, after the 2008 financial crisis, most commentators appear to be sceptical about the positive effects of innovation, during the last ten years optimism prevailed. Actually, even in the past some scholars did underline the dangers of an excessive development of the market for derivatives, expressing fears that at the moment appeared to be exaggerated. Thus in 1995 T.P. Pare⁴ claimed that if financial innovation is to be considered a present, the donor is Alfred Hitchcock. In 2000 Huang⁵ maintained that from the legal point of view derivatives should be considered as the inhabitants of a sort of Jurassic Park, as financial engineers create products that can destroy our civilisation.

The Hedge Funds’ market does not obey ordinary law (Capriglione, 2004). For these funds, even more than for other cases in the world of finance, reaching adequate ethical standards depends crucially on prudential management and on intermediaries’ self-limitation.

³ See for instance C. F. Sirmans and J. D. Benjamin (1990) and Jameson, Dewan and Sirmans (1992).

⁴ Pare (1995) p. 197.

⁵ Huang (2000).

During the 'Nineties the diffusion of complex financial instruments such as reverse convertible ones⁶ granted buyers interest rates equal the double those prevailing on markets, notwithstanding the period of low rates. However, when shares fall, investors lose (given that banks have an interest in using the put option). The complexity of the operations, on one hand, and the prevailing market conditions leading to forecasted growth in share prices on the other contributed to conceal to investors the actual risks of these funds and for many years allowed intermediaries to underline the perspective positive results to the detriment of the speculative aspects of the operations. Precisely the lack of knowledge concerning the implications of a possible change in the trend on the stock exchange pushed many agents to move their savings away from non-risky securities, such as Treasury bonds, to the new ones.

Another instance of asymmetric information concerns the owners of index linked insurance policies, especially Vita index linked. Usually these contracts guarantee both a possible revaluation of the capital in case a certain index or pool of securities should grow, and the full refund of the sums that have been paid in due time. However, many buyers were unaware of the fact that the repayment of the capital is not guaranteed by the company that sells the insurance policy, but by the issuing agent at the basis of the contract.

Lehman Brothers, that until the Stock Exchange crash was considered to be one of the five best banks in the world, was the counterpart of many insurance derivatives. Its failure determined heavy losses for some seventy index linked securities sold by Italian companies. Other insurance policies were guaranteed by Icelandic banks. Actually the Italian Commission for the control of the stock exchange had advised some companies selling such index securities to publish a warning on their internet site announcing the deterioration of the financial situation of the banks underlying the contracts. Apparently in Italy the exposure to "toxic" securities, such as those by Lehman Brothers, or to other financial products affected by the Wall Street crash is rather limited. In this context surveillance is crucial.

3. A perspective on how to overcome the financial crisis

Financial innovation has positive goals, but it has caused relevant negative effects to the financial system in the course of time. More in detail, it contributed to change intermediaries, allowing them to modify the degree of risk associated with their activity and their solvency without changing their external structure. Banks have become an access to capital markets and they have transferred their assets outside, to other specialised operators who in turn issue liabilities that are purchased by institutional investors who then transform and sell them to the final buyers. The transfer of risk to other agents weakens the bank's incentive to rigorously select and monitor its clients. This is an important negative externality stemming from financial innovation.

On the basis of all the considerations outlined above it is evident that financial innovation is a complex phenomenon that should have been carefully monitored by economic authorities both national and international. The development of financial innovation certainly is the main cause of financial crises. The latter are becoming more and more alarming. To avoid

⁶ For instance "a bank purchases from a client (at a premium) European-type "put" options linked to the market value of a reference basket of shares and it sells to the same client Treasury bonds, that remain locked up to guarantee the bank's option". See (Antonucci, 2004, p. 204).

these crises, or at least to limit their impact, it is necessary to remove their causes and tightly regulate financial markets.

The actions undertaken by the European Central Bank and by the Federal Reserve, i.e. greatly raising the system's liquidity (in doing so the European Central Bank betrayed its main philosophy), may stabilize financial markets in the short run but do not solve the problem. Moreover, the expansion of liquidity may lead to inflation and the latter, added to uncertainty and to the current recession, could lead to stagflation.

Even nationalizations, that have been carried out in a country like the United States notwithstanding its philosophy in favour of privatizations that in Europe dates back to the 'Nineties, cannot go beyond a given limit. On the other hand regulation of financial markets appears far more urgent. It is necessary that Governments, especially the one of the United States, have the strength to impose their views on financial multinationals and on finance in general.

Reducing the amount of short term capital implies reducing the foreign deficit of the United States which is the main source of disequilibria in the world economy. However, this is a very difficult problem to solve. In fact it would be unlikely for dollar depreciation, even a very strong one, to improve the American current account balance. In the United States manufacturing is almost non-existent. The country exports weapons, technology linked to the military sector and finance. Balancing the current account is extremely difficult due to the structure of the American economy that does not produce any longer most of the goods currently used, but rather imports them from abroad.

Instead, regulating financial markets and managing risk is both possible and extremely urgent. Let's take the case of sub-prime mortgages. Banks systematically over-estimated clients' creditworthiness. Previously the agent issuing a loan (the bank) was the same one that would have it repaid; therefore it would evaluate the client's creditworthiness carefully. Nowadays the securitization of credits allows the agent issuing the loan to re-sell it immediately on financial markets; it thus has very little interest in evaluating a client's creditworthiness.

Moreover banks, as mentioned, have created out-of-budget instruments to finance these operations, the so-called "structured investment vehicles" (SIV), which allow them to avoid surveillance and prudential rules.

Financial sector surveillance has the difficult task of planning and enforcing rules of the game that maximise the incentives for virtuous behaviour, discourage free riding and protect agents for whom innovation stands to determine information disadvantages.

It is necessary to regulate financial markets and to limit banks' and other operators' possibilities to take on excessive risk. Surveillance and prudential rules must be upgraded; they cannot be sacrificed in the name of free market and competition.

Concerning the huge increase in money supply on behalf of the Federal Reserve and the European Central Bank, one commentator (X.Vives, *Bagehot ha ancora ragione*, -Bagehot is still right- in Lavoce.info of 03.04.2008) recalled the Bagehot doctrine of 1873, according to which in a crisis the central bank, as a lender of last resort, should lend money (at a penalty rate) to banks that are illiquid but solvent and provide adequate guarantees. The difficulty of putting this doctrine into practice is that central banks are not always able to distinguish between insolvent banks and others that are only illiquid, just as not always

can they evaluate the guarantees correctly. For instance, good quality guarantees are Treasury Bonds or other minimum risk bonds.

In this respect in the first place it is worth noting that surveillance should remain firmly in the hands of central banks, contrary to recent tendencies going in the opposite direction. A further problem is represented by the fact that central banks issue loans also to agencies such as Bear Sterns, over which they do not exert surveillance and concerning whose solvency they thus have limited information. According to some opinions, banks should be able to detect and to manage their own risks by themselves.

In the United States part of the responsibility of surveillance is assigned to the single States, i.e. to fifty different authorities. In Europe there is a European Committee for bank surveillance, a counselling organism of fifty-one members. Co-operation among the central banks is regulated by more than eighty bilateral and multilateral memoranda. In this situation there evidently is a crisis of surveillance models, which allowed excessive risk-taking in the context of financial innovation. Innovation ultimately created the instruments, such as securitization, to by-pass surveillance and its rules.

Some scholars underline that even when structured investment vehicles did not yet exist nevertheless strong financial crises did occur. An instance are the crises of American banks in the 'Eighties and that of Japanese ones during the 'Nineties in the last century. The problem therefore does not lie in the instruments of financial innovation but rather in regulation and surveillance.

The Financial Stability Forum and the Governor of the Bank of Italy Draghi maintain that the financial system will have to have less debt and more capital. The report of the Financial Stability Forum considers the rapid adoption of the new prudential criteria of Basle II and an increase in capital requirements, especially for structured products, an essential step. The Report suggests the instruments to improve the management of liquidity and risk, raise the accounting transparency of financial institutions, operate on rating mechanism and guide interventions in a crisis. It obtained the approval of the Group of Seven.

As noted by the Governor of the Bank of Italy in his Final Considerations on May 31 2008 the guidelines contained in the Report generally do not need new legislation, but can be adopted directly by the authorities in charge of surveillance. However it is preferable that also appropriate laws are adopted in order to avoid recurrent financial crisis with devastating effects.

When a financial crisis of the dimension of the present one occurs it has heavy real effects. Under a more general point of view the present functioning of financial markets, and especially the possibility of assuming risk without adequate mechanisms of regulation and control, distort the real economy. If the macro effects of massive money creation on behalf of central banks amount to inflation and possibly stagflation, the micro ones are equally negative inasmuch as they distort credit and financial flows. These effects are not limited to the short run but have long run consequences on the structure of the real economy. Financial policies have distortive effects that may destroy healthy enterprises.

However, it would be important to understand and to analyse why a country like the United States in which finance prevails over the real economy has a constant and incurable current account deficit, while a country like Germany, with a public banking sector and a strong

public participation in production, a manufacturing sector still strongly rooted in its territory, a very strong presence of trade unions, is the first world exporter (in terms of the absolute volume of exports) and has a continuous surplus in its trade and current account balance.

This casts doubts on the general views often expressed in a simplistic and mechanical way concerning the “American model of a free market economy”. It is often forgotten that the considerable growth capacity displayed by the American economy especially during the ‘Nineties in last century is intimately linked to the absence of an external constraint. Moreover, the idea that the American trade deficit is a natural consequence of high growth rates in China and India, that benefit from low labour costs, is hard to share, given that the first exporter in the world is Germany and other countries, such as Japan and some European countries like the Netherlands, notwithstanding their labour costs and the cost of the welfare state are higher than those of the United States, follow closely.

To restore a healthy balance between economic and financial activity is therefore urgent even if it is not an easy task, given a framework in which international liquidity is huge and largely out of control of Governments and central banks.

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